

Experiment Number: 20727 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

ortho-Phthalaldehyde

CAS Number: 643-79-8

Date Report Requested: 02/10/2012

Time Report Requested: 11:42:10

First Dose M/F: 01/19/09 / 01/20/09

Lab: BNW

F1_HSD

NTP Study Number: C20727

Lock Date: 08/21/2009

Cage Range: ALL

Date Range: ALL

Reasons For Removal: ALL

Removal Date Range: ALL

Treatment Groups: Include ALL

Study Gender: Both

TDMSE Version: 2.6.0.0_007

PWG Approval Date: NONE

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	DAY ON TEST										
		0 0 9 3									
HARLAN SPRAGUE DAWLEY RATS MALE CONTROL	ANIMAL ID	0 0 0 0 1	0 0 0 0 2	0 0 0 0 3	0 0 0 0 4	0 0 0 0 5	0 0 0 0 6	0 0 0 0 7	0 0 0 0 8	0 0 0 0 9	0 0 0 0 0
		* TOTALS									

ALIMENTARY SYSTEM

Esophagus	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	10
Liver	+	+	+	+	+	+	+	+	+	+	+	10
Hepatocyte, Degeneration, Focal												1 2.0
Pancreas	+	+	+	+	+	+	+	+	+	+	+	10
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	10
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	10
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	10

CARDIOVASCULAR SYSTEM

Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	10
--------------	---	---	---	---	---	---	---	---	---	---	---	----

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

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HARLAN SPRAGUE DAWLEY RATS MALE CONTROL	DAY ON TEST ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
		0	9	9	9	9	9	9	9	9	9	
		3	3	3	3	3	3	3	3	3	3	
		0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
		1	2	3	4	5	6	7	8	9	0	
												* TOTALS
Heart Cardiomyopathy		+	+	+	+	+	+	+	+	+	+	10
								1				1 1.0

ENDOCRINE SYSTEM

Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	10
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	10
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	10
Parathyroid Gland	+	+	+	+	+	+	+	+	+	+	+	10
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	10
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	10

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

Epididymis	+	+	+	+	+	+	+	+	+	+	+	10
Preputial Gland Inflammation, Chronic Active	+	+	+	+	+	+	+	+	+	+	+	10
	2											1 2.0
Prostate	+	+	+	+	+	+	+	+	+	+	+	10

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		0	0	0	0	0	0	0	0	0	0	
		9	9	9	9	9	9	9	9	9	9	
		3	3	3	3	3	3	3	3	3	3	
		0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	1	
		1	2	3	4	5	6	7	8	9	0	
		* TOTALS										
Seminal Vesicle		+ + + + + + + + + +										10
Testes		+ + + + + + + + + +										10
HEMATOPOIETIC SYSTEM												
Bone Marrow		+ + + + + + + + + +										10
Lymph Node, Bronchial		+ M + + + M + M + +										7
Lymph Node, Mandibular		M + + + + + + + + +										9
Lymph Node, Mediastinal		+ M + + + + + + + M +										8
Lymph Node, Mesenteric		+ + + + + + + + + +										10
Spleen		+ + + + + + + + + +										10
Thymus		+ + + + + + + + + +										10
INTEGUMENTARY SYSTEM												
Mammary Gland		M M + M + + + + + M										6
Skin		+ + + + + + + + + +										10
MUSCULOSKELETAL SYSTEM												
Bone		+ + + + + + + + + +										10

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		0	0	0	0	0	0	0	0	0	0	
		9	9	9	9	9	9	9	9	9	9	
		3	3	3	3	3	3	3	3	3	3	
		0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	1	
		1	2	3	4	5	6	7	8	9	0	
		* TOTALS										

NERVOUS SYSTEM

Brain	+	+	+	+	+	+	+	+	+	+	+	10
-------	---	---	---	---	---	---	---	---	---	---	---	----

RESPIRATORY SYSTEM

Larynx	+	+	+	+	+	+	+	+	+	+	+	10
Inflammation, Chronic Active	1											1 1.0
Lung	+	+	+	+	+	+	+	+	+	+	+	10
Nose	+	+	+	+	+	+	+	+	+	+	+	10
Olfactory Epithelium, Accumulation, Hyaline Droplet	1	1	1	2	1	2	2	1	1			9 1.3
Olfactory Epithelium, Atrophy					1			1				2 1.0
Olfactory Epithelium, Metaplasia, Respiratory								1				1 1.0
Respiratory Epithelium, Accumulation, Hyaline Droplet						1						1 1.0
Respiratory Epithelium, Hyperplasia					1	1	1					3 1.0
Trachea	+	+	+	+	+	+	+	+	+	+	+	10

SPECIAL SENSES SYSTEM

Eye	+	+	+	+	+	+	+	+	+	+	+	10
Cornea, Inflammation, Suppurative	1											1 1.0
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	10

URINARY SYSTEM

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Species/Strain: RATS/HSD

Lab: BNW

HARLAN SPRAGUE DAWLEY RATS MALE CONTROL	DAY ON TEST	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
HARLAN SPRAGUE DAWLEY RATS MALE CONTROL	ANIMAL ID	9	9	9	9	9	9	9	9	9	9	
		3	3	3	3	3	3	3	3	3	3	
Kidney Nephropathy		0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
Urinary Bladder		0	0	0	0	0	0	0	0	0	0	
		1	2	3	4	5	6	7	8	9	0	
* TOTALS												
											10	
											10 1.4	

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First Dose M/F: 01/19/09 / 01/20/09

Lab: BNW

HARLAN SPRAGUE DAWLEY RATS MALE 0.44 ppm	DAY ON TEST	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
ANIMAL ID		9	9	9	9	9	9	9	9	9	9
		3	3	3	3	3	3	3	3	3	3
		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
		2	2	2	2	2	2	2	2	2	2
		0	0	0	0	0	0	0	0	0	1
		1	2	3	4	5	6	7	8	9	0
		* TOTALS									

ALIMENTARY SYSTEM

Liver	+	1	1	1.0
Hepatodiaphragmatic Nodule				

CARDIOVASCULAR SYSTEM

NONE

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

NONE

HEMATOPOIETIC SYSTEM

Lymph Node	+	1	1	1.0
Pigmentation				
Spleen	+	+	+	9
Thymus	+	+	+	10

INTEGUMENTARY SYSTEM

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First Dose M/F: 01/19/09 / 01/20/09

Lab: BNW

HARLAN SPRAGUE DAWLEY RATS MALE 0.44 ppm	DAY ON TEST ANIMAL ID													* TOTALS
		0 0 9 3												
Skin Epithelium, Hair Follicle, Parakeratosis		+	+	+	+	+	+	+	+	+	+	+	+	10 7 1.0
		1	1	1	1			1	1	1				

MUSCULOSKELETAL SYSTEM

NONE

NERVOUS SYSTEM

NONE

RESPIRATORY SYSTEM

Larynx Inflammation, Chronic Active Metaplasia, Squamous	+	+	+	+	+	+	+	+	+	+	+	+	+	10 2 1.0 1 1.0
Lung Alveolus, Infiltration Cellular, Histiocyte	+	+	+	+	+	+	+	+	+	+	+	+	+	10 1 1.0
Nose Inflammation, Suppurative Goblet Cell, Respiratory Epithelium, Hyperplasia Olfactory Epithelium, Accumulation, Hyaline Droplet Olfactory Epithelium, Atrophy Olfactory Epithelium, Metaplasia, Respiratory Respiratory Epithelium, Hyperplasia Respiratory Epithelium, Metaplasia, Squamous	+	+	+	+	+	+	+	+	+	+	+	+	+	10 10 1.6 4 1.0 10 2.8 10 1.9 1 1.0 9 1.0 10 1.9
	1	1	2	2	1	1	2	2	2	2	2	2	2	

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HARLAN SPRAGUE DAWLEY RATS MALE 0.44 ppm	DAY ON TEST	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
ANIMAL ID		9	9	9	9	9	9	9	9	9	9	
		3	3	3	3	3	3	3	3	3	3	
Respiratory Epithelium, Ulcer		0	0	0	0	0	0	0	0	0	0	
Trachea		0	0	0	0	0	0	0	0	0	0	
		2	2	2	2	2	2	2	2	2	2	
		0	0	0	0	0	0	0	0	0	1	
		1	2	3	4	5	6	7	8	9	0	
		* TOTALS										
Respiratory Epithelium, Ulcer		1										
Trachea		+										
		10										
SPECIAL SENSES SYSTEM												
Eye		+										
Cornea, Inflammation, Suppurative		+										
		1										
		10										
		1 1.0										
URINARY SYSTEM												
Kidney		+										
Nephropathy		+										
		2										
		10										
		10 1.3										

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		0	0	0	0	0	0	0	0	0	0
	ANIMAL ID	9	9	9	9	9	9	9	9	9	9
		3	3	3	3	3	3	3	3	3	3
		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
		4	4	4	4	4	4	4	4	4	4
		0	0	0	0	0	0	0	0	0	1
		1	2	3	4	5	6	7	8	9	0
		* TOTALS									

ALIMENTARY SYSTEM

NONE

CARDIOVASCULAR SYSTEM

Heart	+	1
Congestion	1	1 1.0

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

Testes	+	1
Germinal Epithelium, Atrophy	4	1 4.0

HEMATOPOIETIC SYSTEM

Spleen	+	+	+	+	+	+	+	+	+	+	10
Thymus	+	+	+	+	+	+	+	+	+	+	10

INTEGUMENTARY SYSTEM

Skin	+	+	+	+	+	+	+	+	+	+	10
------	---	---	---	---	---	---	---	---	---	---	----

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HARLAN SPRAGUE DAWLEY RATS MALE 0.88 ppm	DAY ON TEST	0 0 0 0 0 0 0 0 0 0	
		0 0 9 9 9 9 9 9 9 9	
	ANIMAL ID	3 3 3 3 3 3 3 3 3 3	
		0 0 0 0 0 0 0 0 0 0	
		4 4 4 4 4 4 4 4 4 4	
		0 0 0 0 0 0 0 0 0 1	
		1 2 3 4 5 6 7 8 9 0	
			* TOTALS
Epithelium, Hair Follicle, Parakeratosis	1 1	1 1	4 1.0

MUSCULOSKELETAL SYSTEM

NONE

NERVOUS SYSTEM

NONE

RESPIRATORY SYSTEM

Larynx	+	+	+	+	+	+	+	+	+	+	10
Inflammation, Chronic Active	2	2	1	1	1	1	1		2		8 1.4
Metaplasia, Squamous	1	1	1	1	1		1	1	1		8 1.0
Necrosis											1 1.0
Regeneration			2		2				1		3 1.7
Lung	+	+	+	+	+	+	+	+	+	+	10
Nose	+	+	+	+	+	+	+	+	+	+	10
Inflammation, Suppurative	2	2	2	2	2	2	2	2	2	2	10 2.0
Goblet Cell, Respiratory Epithelium, Hyperplasia	2	2	1	2	2	1					6 1.7
Olfactory Epithelium, Accumulation, Hyaline Droplet	2	1	2		1	2	3	2	1	1	9 1.7
Olfactory Epithelium, Atrophy	2	2	2	2	2	2	2	2	2	2	10 2.0
Olfactory Epithelium, Metaplasia, Respiratory	1	1	1				1	1	1		6 1.0
Olfactory Epithelium, Regeneration											1 1.0
Respiratory Epithelium, Accumulation, Hyaline Droplet				1							1 1.0

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	DAY ON TEST													* TOTALS
		0 0 9 3	0 0 9 3	0 0 9 3	0 0 9 3	0 0 9 3	0 0 9 3	0 0 9 3	0 0 9 3	0 0 9 3	0 0 9 3	0 0 9 3	0 0 9 3	
HARLAN SPRAGUE DAWLEY RATS MALE 0.88 ppm	ANIMAL ID	0 0 4 0 1	0 0 4 0 2	0 0 4 0 3	0 0 4 0 4	0 0 4 0 5	0 0 4 0 6	0 0 4 0 7	0 0 4 0 8	0 0 4 0 9	0 0 4 0 0			
		Respiratory Epithelium, Hyperplasia	2	1	1	1	2	1	1	1	1	9	1.2	
Respiratory Epithelium, Metaplasia, Squamous	2	2	2	2	2	2	2	2	2	2	2	10	2.0	
Respiratory Epithelium, Necrosis					1			1		2		3	1.3	
Respiratory Epithelium, Regeneration								1				1	1.0	
Turbinate, Atrophy	1	1	1	1	1			1			1	7	1.0	
Trachea	+ + + + + + + + + +											10		
Inflammation, Chronic Active	1 1 1 1											4	1.0	
Metaplasia, Squamous	1 1							1			1	4	1.0	
SPECIAL SENSES SYSTEM														
Eye	+ + + + + + + + + +											10		
Cornea, Inflammation, Suppurative						2						1	2.0	
Cornea, Necrosis						1						1	1.0	
URINARY SYSTEM														
Kidney	+ + + + + + + + + +											10		
Nephropathy	1 1 2 1 1 1 1 1 1 2											9	1.2	

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Experiment Number: 20727 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

ortho-Phthalaldehyde

CAS Number: 643-79-8

Date Report Requested: 02/10/2012

Time Report Requested: 11:42:10

First Dose M/F: 01/19/09 / 01/20/09

Lab: BNW

HARLAN SPRAGUE DAWLEY RATS MALE 1.75 ppm	DAY ON TEST										
		0 0 9 3	0 0 9 3								
ANIMAL ID											* TOTALS
	0 0 6 0 1	0 0 6 0 2	0 0 6 0 3	0 0 6 0 4	0 0 6 0 5	0 0 6 0 6	0 0 6 0 7	0 0 6 0 8	0 0 6 0 9	0 0 6 0 0	

ALIMENTARY SYSTEM

Esophagus	+	+	+	+	+	+	+	M	+	+	9
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	10
Liver	+	+	+	+	+	+	+	+	+	+	10
Pancreas	+	+	+	+	+	+	+	+	+	+	10
Salivary Glands	+	+	+	+	+	+	+	+	+	+	10
Stomach, Forestomach Hyperplasia, Squamous	+	+	+	+	+	+	+	+	+	+	10
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	10

CARDIOVASCULAR SYSTEM

Blood Vessel	+	+	+	+	+	+	+	+	+	+	10
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* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

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1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

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Species/Strain: RATS/HSD

Lab: BNW

HARLAN SPRAGUE DAWLEY RATS MALE 1.75 ppm	DAY ON TEST	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
	ANIMAL ID	9	9	9	9	9	9	9	9	9	9
		3	3	3	3	3	3	3	3	3	3
		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
		6	6	6	6	6	6	6	6	6	6
		0	0	0	0	0	0	0	0	0	1
		1	2	3	4	5	6	7	8	9	0
		* TOTALS									
Heart Cardiomyopathy		+	+	+	+	+	+	+	+	+	10
											1 1.0

ENDOCRINE SYSTEM

Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	10
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	10
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	10
Parathyroid Gland	+	+	+	+	+	+	M	M	+	+	8
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	10
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	10

GENERAL BODY SYSTEM

NONE											
GENITAL SYSTEM											
Epididymis	+	+	+	+	+	+	+	+	+	+	10
Preputial Gland	+	+	+	+	+	+	+	M	+	+	9
Prostate	+	+	+	+	+	+	+	+	+	+	10
Inflammation, Chronic Active	1										1 1.0

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ortho-Phthalaldehyde

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Route: RESPIRATORY EXPOSURE WHOLE BODY

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First Dose M/F: 01/19/09 / 01/20/09

Species/Strain: RATS/HSD

Lab: BNW

HARLAN SPRAGUE DAWLEY RATS MALE 1.75 ppm	DAY ON TEST ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
		9	9	9	9	9	9	9	9	9	9	
		3	3	3	3	3	3	3	3	3	3	
		0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
		6	6	6	6	6	6	6	6	6	6	
		0	0	0	0	0	0	0	0	0	1	
		1	2	3	4	5	6	7	8	9	0	
		* TOTALS										
Seminal Vesicle		+	+	+	+	+	+	+	+	+	+	10
Testes		+	+	+	+	+	+	+	+	+	+	10
Germinal Epithelium, Atrophy												1 1.0
HEMATOPOIETIC SYSTEM												
Bone Marrow		+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Bronchial		+	M	M	+	+	M	+	+	+	M	6
Lymph Node, Mandibular		+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Mediastinal		M	M	+	+	M	M	+	M	+	M	4
Lymph Node, Mesenteric		+	+	+	+	+	+	+	+	+	+	10
Spleen		+	+	+	+	+	+	+	+	+	+	10
Thymus		+	+	+	+	+	+	+	+	+	+	10
INTEGUMENTARY SYSTEM												
Mammary Gland		M	M	+	+	M	+	+	+	+	+	7
Skin		+	+	+	+	+	+	+	+	+	+	10
Epithelium, Hair Follicle, Parakeratosis		1	1	1	1	1	1	1	1	1	1	7 1.0
MUSCULOSKELETAL SYSTEM												

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Experiment Number: 20727 - 01

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Date Report Requested: 02/10/2012

Test Type: 90-DAY

ortho-Phthalaldehyde

Time Report Requested: 11:42:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 643-79-8

First Dose M/F: 01/19/09 / 01/20/09

Species/Strain: RATS/HSD

Lab: BNW

	DAY ON TEST											* TOTALS
		0 0 9 3										
HARLAN SPRAGUE DAWLEY RATS MALE 1.75 ppm	ANIMAL ID	0 0 6 0 1	0 0 6 0 2	0 0 6 0 3	0 0 6 0 4	0 0 6 0 5	0 0 6 0 6	0 0 6 0 7	0 0 6 0 8	0 0 6 0 9	0 0 6 0 0	
Olfactory Epithelium, Metaplasia, Squamous		1										1 1.0
Olfactory Epithelium, Necrosis												1 2.0
Respiratory Epithelium, Hyperplasia		1	1	1	1	1	1	1	1	1		7 1.0
Respiratory Epithelium, Metaplasia, Squamous	2	2	2	2	2	2	2	2	2	2		10 2.0
Respiratory Epithelium, Necrosis	2		1	1					1	2		5 1.4
Turbinate, Atrophy	1	1	1	1	1	1	1	1	1	1		10 1.0
Trachea		+	+	+	+	+	+	+	+	+		10
Fibrosis		1	1		1			1	1			5 1.0
Inflammation, Chronic Active		2	1	2	2	2	1		2	2		8 1.8
Metaplasia, Squamous		1	1	1	1	1	1	1	1	1		10 1.0
Necrosis		1			2				1			3 1.3
Regeneration		3	4	3	3	3		2	2			7 2.9
SPECIAL SENSES SYSTEM												
Eye		+	+	+	+	+	+	+	+	+		10
Cornea, Inflammation, Suppurative								2				1 2.0
Harderian Gland		+	+	+	+	+	+	+	+	+		10
URINARY SYSTEM												
Kidney		+	+	+	+	+	+	+	+	+		10
Nephropathy		1	1	1	2	1	1		2			7 1.3
Urinary Bladder		+	+	+	+	+	+	+	+	+		10

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Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

ortho-Phthalaldehyde

CAS Number: 643-79-8

Date Report Requested: 02/10/2012

Time Report Requested: 11:42:10

First Dose M/F: 01/19/09 / 01/20/09

Lab: BNW

HARLAN SPRAGUE DAWLEY RATS MALE 3.5 ppm	DAY ON TEST	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
ANIMAL ID		4	1	0	3	9	9	3	0	0	9
		7	0	4	9	3	3	9	4	3	3
		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
		8	8	8	8	8	8	8	8	8	8
		0	0	0	0	0	0	0	0	0	1
		1	2	3	4	5	6	7	8	9	0

* TOTALS

ALIMENTARY SYSTEM

Esophagus	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	10
Liver Fibrosis	+	+	+	+	+	+	+	+	+	+	+	10
Pancreas	+	+	+	+	+	+	+	+	+	+	+	10
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	10
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	10
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	10

CARDIOVASCULAR SYSTEM

Heart	+	+	+	+	+	+	+	+	+	+	+	10
-------	---	---	---	---	---	---	---	---	---	---	---	----

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Experiment Number: 20727 - 01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 02/10/2012

Test Type: 90-DAY

ortho-Phthalaldehyde

Time Report Requested: 11:42:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 643-79-8

First Dose M/F: 01/19/09 / 01/20/09

Species/Strain: RATS/HSD

Lab: BNW

DAY ON TEST

**HARLAN SPRAGUE DAWLEY RATS
MALE
3.5 ppm**

ANIMAL ID

0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
4	1	0	3	9	9	3	0	0	0	9
7	0	4	9	3	3	9	4	3	3	3
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
8	8	8	8	8	8	8	8	8	8	8
0	0	0	0	0	0	0	0	0	0	1
1	2	3	4	5	6	7	8	9	0	0

*** TOTALS****ENDOCRINE SYSTEM**

Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	10
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	10
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	10
Parathyroid Gland	+	+	+	+	+	+	+	+	+	+	10
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	10
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	10

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

Epididymis	+	+	+	+	+	+	+	+	+	+	10
Penis						+					1
Inflammation, Suppurative						3					1 3.0
Preputial Gland	+	+	+	+	+	+	+	+	+	+	10
Inflammation, Chronic Active						1					1 1.0
Prostate	+	+	+	+	+	+	+	+	+	+	10
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+	10

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ortho-Phthalaldehyde

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Species/Strain: RATS/HSD

Lab: BNW

HARLAN SPRAGUE DAWLEY RATS MALE 3.5 ppm	DAY ON TEST ANIMAL ID													* TOTALS
		0 0 4 7	0 0 1 0	0 0 0 4	0 0 3 9	0 0 9 3	0 0 9 3	0 0 3 9	0 0 4 3	0 0 0 3	0 0 0 3	0 0 0 3	0 0 0 3	
Atrophy														1 1.0
Testes		+	+	+	+	+	+	+	+	+	+	+		10
HEMATOPOIETIC SYSTEM														
Bone Marrow		+	+	+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Bronchial		+	+	+	+	+	M	+	+	M	M			7
Lymph Node, Mandibular		+	+	+	+	+	+	+	+	+	+	+		10
Lymph Node, Mediastinal		+	+	+	+	+	+	M	+	+	+			9
Lymph Node, Mesenteric		+	+	+	+	+	+	+	+	+	+	+		10
Spleen		+	+	+	+	+	+	+	+	+	+	+		10
Atrophy, Lymphoid		1	1	2	2			2	1					6 1.5
Thymus		+	+	+	+	+	+	+	+	+	+	+		10
Atrophy, Lymphoid		2	1	2	1	2	2	1	1					8 1.5
INTEGUMENTARY SYSTEM														
Mammary Gland		M	+	+	+	+	M	M	M	+	+			6
Skin		+	+	+	+	+	+	+	+	+	+	+		10
Hyperplasia, Squamous							1							1 1.0
Inflammation, Suppurative														1 3.0
Adnexa, Degeneration		3	1	2				1	1					4 1.3

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Species/Strain: RATS/HSD

Lab: BNW

HARLAN SPRAGUE DAWLEY RATS MALE 3.5 ppm	DAY ON TEST ANIMAL ID													* TOTALS
		0 0 4 7	0 0 1 0	0 0 0 4	0 0 3 9	0 0 9 3	0 0 9 3	0 0 3 9	0 0 4 3	0 0 0 3	0 0 0 3	0 0 0 3	0 0 0 3	
Inflammation, Suppurative		3	3	2	3	3	3	3	2	2	2	3		10 2.7
Glands, Olfactory Epithelium, Hyperplasia		1				1								2 1.0
Olfactory Epithelium, Atrophy		2	2	2	2	2	2			2				7 2.0
Olfactory Epithelium, Metaplasia, Respiratory						2				2				2 2.0
Olfactory Epithelium, Metaplasia, Squamous						2								1 2.0
Olfactory Epithelium, Necrosis		2			2		2							3 2.0
Olfactory Epithelium, Regeneration		2		1		2			2					4 1.8
Respiratory Epithelium, Hyperplasia		1				1			1					3 1.0
Respiratory Epithelium, Metaplasia, Squamous		2	2	1	2	2	2	2	1	1	2			10 1.7
Respiratory Epithelium, Necrosis		3	2	2	3	2	2	2	2	3	2			10 2.3
Respiratory Epithelium, Regeneration			1				2	1						3 1.3
Trachea		+	+	+	+	+	+	+	+	+	+			10
Fibrosis		1				2		2						3 1.7
Inflammation, Chronic Active		2	2	3	2		1	1	3	2	1			9 1.9
Metaplasia, Squamous		2		1	2	3	2			2				6 2.0
Necrosis		1	3	3		1	1	1	3	1				8 1.8
Regeneration		3	2	1	3	3		1		3				7 2.3
Ulcer					1									1 1.0
SPECIAL SENSES SYSTEM														
Eye		+	+	+	+	+	+	+	+	+	+			10
Anterior Chamber, Inflammation, Suppurative		1	1				1		1					4 1.0
Cornea, Inflammation, Suppurative		1	1		3		3		2					5 2.0
Cornea, Necrosis						2		1						2 1.5
Harderian Gland		+	+	+	+	+	+	+	+	+	+			10
URINARY SYSTEM														

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

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Experiment Number: 20727 - 01

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Date Report Requested: 02/10/2012

Test Type: 90-DAY

ortho-Phthalaldehyde

Time Report Requested: 11:42:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 643-79-8

First Dose M/F: 01/19/09 / 01/20/09

Species/Strain: RATS/HSD

Lab: BNW

HARLAN SPRAGUE DAWLEY RATS MALE 3.5 ppm	DAY ON TEST												
		0 0 4 7	0 0 1 0	0 0 0 4	0 0 3 9	0 0 9 3	0 0 9 3	0 0 3 9	0 0 4 3	0 0 0 3	0 0 0 3	0 0 0 3	
ANIMAL ID													* TOTALS
	Kidney Nephropathy	+	+	+	+	+	+	+	+	+	+	+	10 1 1.0
Urinary Bladder		+	+	+	+	+	+	+	+	+	+	+	10

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Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

ortho-Phthalaldehyde

CAS Number: 643-79-8

Date Report Requested: 02/10/2012

Time Report Requested: 11:42:10

First Dose M/F: 01/19/09 / 01/20/09

Lab: BNW

HARLAN SPRAGUE DAWLEY RATS MALE 7.0 ppm	DAY ON TEST										
		0 0 0 7	0 0 0 3	0 0 0 6	0 0 0 3	0 0 0 0	0 0 1 0	0 0 0 6	0 0 0 4	0 0 0 5	
ANIMAL ID		0 1 0 0	0 1 0 0	0 1 0 0	0 1 0 0	0 0 0 0	0 1 0 0	0 1 0 0	0 1 0 0	0 1 0 0	
		1 2	2 3	3 4	4 5	5 6	6 7	7 8	8 9	9 0	

* TOTALS

ALIMENTARY SYSTEM

Esophagus	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Cecum	+	+	+	A	+	+	+	A	+	+	8
Intestine Large, Colon	+	+	+	A	+	+	+	A	+	+	8
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Ileum Diverticulum	+	+	+	A	+	+	+	A	+	+	8
											1 1.0
Intestine Small, Jejunum	+	+	+	A	A	+	+	A	+	+	7
Liver	+	+	+	+	+	+	+	+	+	+	10
Pancreas	+	+	+	+	+	+	+	+	+	+	10
Salivary Glands	+	+	+	+	+	+	+	+	+	+	10
Stomach, Forestomach Cyst, Squamous	+	+	+	+	+	+	+	+	+	+	10
											1 2.0
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	10

CARDIOVASCULAR SYSTEM

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

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Date Report Requested: 02/10/2012

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ortho-Phthalaldehyde

Time Report Requested: 11:42:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 643-79-8

First Dose M/F: 01/19/09 / 01/20/09

Species/Strain: RATS/HSD

Lab: BNW

DAY ON TEST		0	0	0	0	0	0	0	0	0	0	0	
HARLAN SPRAGUE DAWLEY RATS MALE 7.0 ppm		0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	1	0	0	0	0	
		7	3	6	3	3	3	0	6	4	5		
ANIMAL ID		0	0	0	0	0	0	0	0	0	0		
		1	1	1	1	1	1	1	1	1	1		
		0	0	0	0	0	0	0	0	0	0		
		0	0	0	0	0	0	0	0	0	1		
		1	2	3	4	5	6	7	8	9	0		
* TOTALS													
Heart		+	+	+	+	+	+	+	+	+	+		10
ENDOCRINE SYSTEM													
Adrenal Cortex		+	+	+	+	+	+	+	+	+	+		10
Adrenal Medulla		+	+	+	+	+	+	+	+	+	+		10
Islets, Pancreatic		+	+	+	+	+	+	+	+	+	+		10
Parathyroid Gland		+	+	+	+	+	+	+	M	+	+		9
Pituitary Gland		+	+	+	+	+	+	+	+	+	+		10
Thyroid Gland		+	+	+	+	+	+	+	+	+	+		10
GENERAL BODY SYSTEM													
NONE													
GENITAL SYSTEM													
Epididymis		+	+	+	+	+	+	+	+	+	+		10
Infiltration Cellular, Mononuclear Cell		1											1 1.0
Preputial Gland		+	+	+	+	+	+	+	+	+	+		10
Prostate		+	+	+	+	+	+	+	+	+	+		10
Seminal Vesicle		+	+	+	+	+	+	+	+	+	+		10

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 20727 - 01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 02/10/2012

Test Type: 90-DAY

ortho-Phthalaldehyde

Time Report Requested: 11:42:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 643-79-8

First Dose M/F: 01/19/09 / 01/20/09

Species/Strain: RATS/HSD

Lab: BNW

HARLAN SPRAGUE DAWLEY RATS MALE 7.0 ppm	DAY ON TEST ANIMAL ID													* TOTALS
		0 0 0 7	0 0 0 3	0 0 0 6	0 0 0 3	0 0 0 0	0 1 0	0 6 0	0 4 0	0 5 0	0 0 0 0	0 0 0 0	0 0 0 0	
Testes		+	+	+	+	+	+	+	+	+	+	+	+	10
HEMATOPOIETIC SYSTEM														
Bone Marrow		+	+	+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Bronchial		+	+	+	M	M	M	M	+	+	+	+	+	6
Lymph Node, Mandibular		+	+	+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Mediastinal		+	+	M	+	M	+	+	+	+	M	+	+	7
Lymph Node, Mesenteric		+	+	+	+	+	+	+	+	+	+	+	+	10
Spleen		+	+	+	+	+	+	+	+	+	+	+	+	10
Atrophy, Lymphoid		3	2	4	2	2	2	3	4	3	2	10	2.7	
Thymus		+	+	+	+	+	+	+	+	+	+	+	+	10
Atrophy, Lymphoid		2	3		2	3	3	3	3	3	3	10	2.7	
INTEGUMENTARY SYSTEM														
Mammary Gland		M	M	+	M	M	M	M	M	+	M	1	1.0	2
Skin		+	+	+	+	+	+	+	+	+	+	+	+	10
Hyperplasia, Squamous														10 1.2
Adnexa, Degeneration		1	1	2	1	1	1	1	1	1	2			10 1.7
Epithelium, Hair Follicle, Parakeratosis		1	1	2	2	2	2	1	2	2	2			
MUSCULOSKELETAL SYSTEM														

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Experiment Number: 20727 - 01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 02/10/2012

Test Type: 90-DAY

ortho-Phthalaldehyde

Time Report Requested: 11:42:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 643-79-8

First Dose M/F: 01/19/09 / 01/20/09

Species/Strain: RATS/HSD

Lab: BNW

HARLAN SPRAGUE DAWLEY RATS MALE 7.0 ppm	DAY ON TEST ANIMAL ID	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	1	0	0	0
		7	3	6	3	3	3	0	6	4	5
		0	0	0	0	0	0	0	0	0	0
		1	1	1	1	1	1	1	1	1	1
		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	1
		1	2	3	4	5	6	7	8	9	0
		* TOTALS									
Bone		+	+	+	+	+	+	+	+	+	10
Maxilla, Inflammation, Chronic Active							3				1 3.0
NERVOUS SYSTEM											
Brain		+	+	+	+	+	+	+	+	+	10
RESPIRATORY SYSTEM											
Larynx		+	+	+	+	+	+	+	+	+	10
Inflammation, Chronic Active		2	3	3	3	3	4	3	3	3	3
Metaplasia, Squamous		4	3	3	2	2	1	3	3	3	3
Necrosis		1	3	3	3	2	3	3	3	3	2
Regeneration		2	2			2		3	1	2	
Lung		+	+	+	+	+	+	+	+	+	10
Alveolus, Infiltration Cellular, Histiocyte								1			1 1.0
Alveolus, Inflammation, Suppurative		1		1				1	1	1	6 1.0
Bronchus, Fibrosis							2				1 2.0
Bronchus, Hyperplasia		1									1 1.0
Bronchus, Inflammation, Chronic Active		3	1	3		1		3	2	3	3
Bronchus, Metaplasia, Squamous		1									1 1.0
Bronchus, Necrosis		4	1	3				3	2	3	3
Bronchus, Regeneration						2					1 2.0
Nose		+	+	+	+	+	+	+	+	+	10
Inflammation, Suppurative		2	3	2	3	3	2	2	2	2	10 2.3
Glands, Olfactory Epithelium, Hyperplasia				2			1				3 1.7
Goblet Cell, Respiratory Epithelium, Hyperplasia				1							1 1.0

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

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1-4 .. Lesion qualified as:

- 1) Minimal 3) Moderate
- 2) Mild 4) Marked

Experiment Number: 20727 - 01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 02/10/2012

Test Type: 90-DAY

ortho-Phthalaldehyde

Time Report Requested: 11:42:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 643-79-8

First Dose M/F: 01/19/09 / 01/20/09

Species/Strain: RATS/HSD

Lab: BNW

HARLAN SPRAGUE DAWLEY RATS MALE 7.0 ppm	ANIMAL ID	DAY ON TEST										* TOTALS	
		0	0	0	0	0	0	0	0	0	0		
		0	0	0	0	0	0	0	0	0	0		
		0	0	0	0	0	0	1	0	0	0		
		7	3	6	3	3	3	0	6	4	5		
		0	0	0	0	0	0	0	0	0	0		
		1	1	1	1	1	1	1	1	1	1		
		0	0	0	0	0	0	0	0	0	0		
		0	0	0	0	0	0	0	0	0	1		
		1	2	3	4	5	6	7	8	9	0		
Olfactory Epithelium, Atrophy		2		1			1	1	2	1		6 1.3	
Olfactory Epithelium, Metaplasia, Squamous							1					1 1.0	
Respiratory Epithelium, Metaplasia, Squamous		2	2	2	2		1	2	1	2		8 1.8	
Respiratory Epithelium, Necrosis		3	3	3	3	3	3	3	3	2		10 2.9	
Respiratory Epithelium, Regeneration		1	2		2	2		1	1			6 1.5	
Trachea		+	+	+	+	+	+	+	+	+		10	
Inflammation, Chronic Active		2	3	2	3	2	4	2	3	3	3		10 2.7
Metaplasia, Squamous		2	2	1		2		2	2				6 1.8
Necrosis		1	2	3	3		3		3	2			8 2.6
Regeneration				2	2	3	1	2		3			6 2.2
Ulcer						2		3					2 2.5

SPECIAL SENSES SYSTEM

Eye	+	+	+	+	+	+	+	+	+	+		10
Anterior Chamber, Inflammation, Suppurative	1					1	1	1	1			5 1.0
Cornea, Hyperplasia	2					1						2 1.5
Cornea, Inflammation, Suppurative	2		2			3	2	3	2			6 2.3
Cornea, Necrosis				2		3	2	3				4 2.5
Harderian Gland	+	+	+	+	+	+	+	+	+	+		10

URINARY SYSTEM

Kidney	+	+	+	+	+	+	+	+	+	+		10
Nephropathy				1				1				2 1.0
Urinary Bladder	+	+	+	+	+	+	+	+	+	+		10

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

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1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 20727 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

ortho-Phthalaldehyde

CAS Number: 643-79-8

Date Report Requested: 02/10/2012

Time Report Requested: 11:42:10

First Dose M/F: 01/19/09 / 01/20/09

Lab: BNW

*** END OF MALE DATA ***

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

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1-4 .. Lesion qualified as:

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Experiment Number: 20727 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

ortho-Phthalaldehyde

CAS Number: 643-79-8

Date Report Requested: 02/10/2012

Time Report Requested: 11:42:10

First Dose M/F: 01/19/09 / 01/20/09

Lab: BNW

	DAY ON TEST										
		0 0 9 3									
HARLAN SPRAGUE DAWLEY RATS FEMALE CONTROL	ANIMAL ID	0 0 1 0 1									
		* TOTALS									

ALIMENTARY SYSTEM

Esophagus	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	10
Liver	+	+	+	+	+	+	+	+	+	+	+	10
Pancreas	+	+	+	+	+	+	+	+	+	+	+	10
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	10
Stomach, Forestomach Cyst, Squamous	+	+	+	+	+	+	+	+	+	+	+	10
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	10

CARDIOVASCULAR SYSTEM

Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	10
--------------	---	---	---	---	---	---	---	---	---	---	---	----

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Experiment Number: 20727 - 01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 02/10/2012

Test Type: 90-DAY

ortho-Phthalaldehyde

Time Report Requested: 11:42:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 643-79-8

First Dose M/F: 01/19/09 / 01/20/09

Species/Strain: RATS/HSD

Lab: BNW

HARLAN SPRAGUE DAWLEY RATS FEMALE CONTROL	DAY ON TEST ANIMAL ID	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
		9	9	9	9	9	9	9	9	9	9
* TOTALS											
Bone Marrow		+	+	+	+	+	+	+	+	+	10
Lymph Node, Bronchial		+	+	+	M	+	+	+	+	M	+
Lymph Node, Mandibular		+	+	+	+	+	+	M	+	+	9
Lymph Node, Mediastinal		+	+	+	+	+	M	M	+	+	8
Lymph Node, Mesenteric		+	+	+	+	+	+	+	+	+	10
Spleen		+	+	+	+	+	+	+	+	+	10
Thymus		+	+	+	+	+	+	+	+	+	10
INTEGUMENTARY SYSTEM											
Mammary Gland		+	+	+	+	+	+	+	+	+	10
Skin		+	+	+	+	+	+	+	+	+	10
MUSCULOSKELETAL SYSTEM											
Bone		+	+	+	+	+	+	+	+	+	10
NERVOUS SYSTEM											
Brain		+	+	+	+	+	+	+	+	+	10
RESPIRATORY SYSTEM											

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Experiment Number: 20727 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

ortho-Phthalaldehyde

CAS Number: 643-79-8

Date Report Requested: 02/10/2012

Time Report Requested: 11:42:10

First Dose M/F: 01/19/09 / 01/20/09

Lab: BNW

	DAY ON TEST											* TOTALS
		0	0	0	0	0	0	0	0	0	0	
HARLAN SPRAGUE DAWLEY RATS FEMALE CONTROL		0	0	0	0	0	0	0	0	0	0	
	ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
		1	1	1	1	1	1	1	1	1	1	
		0	0	0	0	0	0	0	0	0	1	
		1	2	3	4	5	6	7	8	9	0	
Larynx		+	+	+	+	+	+	+	+	+	+	10
Lung		+	+	+	+	+	+	+	+	+	+	10
Nose		+	+	+	+	+	+	+	+	+	+	10
Olfactory Epithelium, Accumulation, Hyaline Droplet		1	1	1	1	1	1	3	1	1		9 1.2
Trachea		+	+	+	+	+	+	+	+	+	+	10
SPECIAL SENSES SYSTEM												
Eye		+	+	+	+	+	+	+	+	+	+	10
Harderian Gland		+	+	+	+	+	+	+	+	+	+	10
URINARY SYSTEM												
Kidney		+	+	+	+	+	+	+	+	+	+	10
Nephropathy		1	1		1	1		1	1			6 1.0
Urinary Bladder		+	+	+	+	+	+	+	+	+	+	10

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Experiment Number: 20727 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

ortho-Phthalaldehyde

CAS Number: 643-79-8

Date Report Requested: 02/10/2012

Time Report Requested: 11:42:10

First Dose M/F: 01/19/09 / 01/20/09

Lab: BNW

HARLAN SPRAGUE DAWLEY RATS FEMALE 0.44 ppm	DAY ON TEST	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
ANIMAL ID		9	9	9	9	9	9	9	9	9	9	
		3	3	3	3	3	3	3	3	3	3	
		0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
		3	3	3	3	3	3	3	3	3	3	
		0	0	0	0	0	0	0	0	0	1	
		1	2	3	4	5	6	7	8	9	0	
		* TOTALS										

ALIMENTARY SYSTEM

Stomach, Glandular

+ + + + + + + + + + 9

CARDIOVASCULAR SYSTEM

NONE

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

NONE

HEMATOPOIETIC SYSTEM

Spleen + + + + + + + + + + 10

Thymus + + + + + + + + + + 10

INTEGUMENTARY SYSTEM

Skin + + + + + + + + + + 10

Adnexa, Degeneration + + + + + + + + + + 1 1 1.0

Epithelium, Hair Follicle, Parakeratosis 1 1 1.0

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2) Mild 4) Marked

Experiment Number: 20727 - 01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 02/10/2012

Test Type: 90-DAY

ortho-Phthalaldehyde

Time Report Requested: 11:42:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 643-79-8

First Dose M/F: 01/19/09 / 01/20/09

Species/Strain: RATS/HSD

Lab: BNW

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
0.44 ppm | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|---|-------------|-----------------|---|---|---|---|---|---|---|---|---|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | ANIMAL ID | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| | | * TOTALS | | | | | | | | | |

MUSCULOSKELETAL SYSTEM

NONE

NERVOUS SYSTEM

NONE

RESPIRATORY SYSTEM

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|--------|
| Larynx | + | + | + | + | + | + | + | + | + | + | 10 |
| Inflammation, Chronic Active | | | | | | | | | | 1 | 1.0 |
| Metaplasia, Squamous | | | | | | | | | | 1 | 1.0 |
| Lung | + | + | + | + | + | + | + | + | + | + | 10 |
| Alveolus, Infiltration Cellular, Histiocyte | | | | | | | | | | 1 | 1.0 |
| Nose | + | + | + | + | + | + | + | + | + | + | 10 |
| Inflammation, Suppurative | 1 | 1 | 1 | 1 | 1 | | 1 | 1 | 1 | 2 | 9 1.1 |
| Glands, Olfactory Epithelium, Hyperplasia | | | | | | | | | | | 2 1.0 |
| Olfactory Epithelium, Accumulation, Hyaline Droplet | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 10 2.6 |
| Olfactory Epithelium, Atrophy | 2 | 2 | 2 | 2 | 1 | | 2 | 2 | 2 | 1 | 9 1.8 |
| Olfactory Epithelium, Metaplasia, Respiratory | | | | | 1 | | | | | | 1 1.0 |
| Respiratory Epithelium, Accumulation, Hyaline Droplet | 1 | | | | 1 | 2 | 1 | | | | 4 1.3 |
| Respiratory Epithelium, Hyperplasia | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 9 1.0 |
| Respiratory Epithelium, Metaplasia, Squamous | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 10 1.9 |
| Respiratory Epithelium, Necrosis | 1 | 1 | | | | | | | | | 2 1.0 |
| Turbinate, Atrophy | 1 | | | | 1 | | | | | | 2 1.0 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

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Experiment Number: 20727 - 01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 02/10/2012

Test Type: 90-DAY

ortho-Phthalaldehyde

Time Report Requested: 11:42:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 643-79-8

First Dose M/F: 01/19/09 / 01/20/09

Species/Strain: RATS/HSD

Lab: BNW

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
0.44 ppm | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
|--|-------------|-------------------------|---|---|---|---|---|---|---|---|---|-------|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| ANIMAL ID | | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | |
| | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| Trachea | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| SPECIAL SENSES SYSTEM | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Eye | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| URINARY SYSTEM | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | |
| Kidney | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |
| Nephropathy | | | | | | | | | | | | |
| | | + + + + + + + + + + + + | | | | | | | | | | 10 |
| | | + + + + + + + + + + + + | | | | | | | | | | 10 |
| | | + + + + + + + + + + + + | | | | | | | | | | 10 |
| | | 1 1 1 1 2 | | | | | | | | | | 5 1.2 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 20727 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

ortho-Phthalaldehyde

CAS Number: 643-79-8

Date Report Requested: 02/10/2012

Time Report Requested: 11:42:10

First Dose M/F: 01/19/09 / 01/20/09

Lab: BNW

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
0.88 ppm | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|--|-------------|----------|---|---|---|---|---|---|---|---|---|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | ANIMAL ID | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| | | * TOTALS | | | | | | | | | |

ALIMENTARY SYSTEM

| | | | |
|--------------------|---|---|-----|
| Mesentery | + | 1 | 1 |
| Fat, Degeneration | 1 | | 1.0 |
| Stomach, Glandular | + | + | 9 |

CARDIOVASCULAR SYSTEM

NONE

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

NONE

HEMATOPOIETIC SYSTEM

| | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|----|
| Spleen | + | + | + | + | + | + | + | + | + | + | 10 |
| Thymus | + | + | + | + | + | + | + | + | + | + | 10 |

INTEGUMENTARY SYSTEM

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically M .. Missing tissue
X .. Lesion present A .. Autolysis precludes evaluation
I .. Insufficient tissue BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

- 1) Minimal 3) Moderate
- 2) Mild 4) Marked

Experiment Number: 20727 - 01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 02/10/2012

Test Type: 90-DAY

ortho-Phthalaldehyde

Time Report Requested: 11:42:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 643-79-8

First Dose M/F: 01/19/09 / 01/20/09

Species/Strain: RATS/HSD

Lab: BNW

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
0.88 ppm | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|---|-------------|-----------------|---|---|---|---|---|---|---|---|-------|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | ANIMAL ID | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| | | * TOTALS | | | | | | | | | |
| Skin | | + | + | + | + | + | + | + | + | + | 10 |
| Epithelium, Hair Follicle, Parakeratosis | | | | | | | | | | | 1 1.0 |

MUSCULOSKELETAL SYSTEM

NONE

NERVOUS SYSTEM

NONE

RESPIRATORY SYSTEM

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|--------|
| Larynx | + | + | + | + | + | + | + | + | + | + | 10 |
| Inflammation, Chronic Active | | | | | | | | | | 2 | 1 2.0 |
| Metaplasia, Squamous | 1 | 1 | | | | | | | | 1 | 4 1.0 |
| Regeneration | | | | | | | | | | 2 | 1 2.0 |
| Ulcer | | | | | | | | | | 1 | 1 1.0 |
| Lung | + | + | + | + | + | + | + | + | + | + | 10 |
| Alveolus, Infiltration Cellular, Histiocyte | | | | | | | | | | 1 | 1 1.0 |
| Interstitial, Fibrosis | | | | | | | | | | 1 | 1 1.0 |
| Perivascular, Inflammation, Chronic Active | | | | | | | | | | 1 | 1 1.0 |
| Nose | + | + | + | + | + | + | + | + | + | + | 10 |
| Inflammation, Suppurative | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 10 1.5 |
| Olfactory Epithelium, Accumulation, Hyaline Droplet | 3 | 3 | 3 | 2 | 3 | 2 | | 3 | 1 | | 8 2.5 |
| Olfactory Epithelium, Atrophy | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 10 2.0 |
| Olfactory Epithelium, Metaplasia, Respiratory | | | | | | | | | | 1 | 2 1.0 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 20727 - 01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 02/10/2012

Test Type: 90-DAY

ortho-Phthalaldehyde

Time Report Requested: 11:42:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 643-79-8

First Dose M/F: 01/19/09 / 01/20/09

Species/Strain: RATS/HSD

Lab: BNW

HARLAN SPRAGUE DAWLEY RATS
FEMALE
0.88 ppm

ANIMAL ID

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

* TOTALS

Olfactory Epithelium, Necrosis 1 1.0

Respiratory Epithelium, Hyperplasia 2 1 1 1 1 1 1 1 1 1 1.1

Respiratory Epithelium, Metaplasia, Squamous 2 2 2 2 2 2 2 2 2 2 2.0

Respiratory Epithelium, Necrosis 2 1 1 1 1 1 1 1 1 1 1.2

Respiratory Epithelium, Regeneration 2 1 1 1 1 1 1 1 1 1 1.5

Turbinate, Atrophy 1 1 1 1 1 1 1 1 1 1 1.0

Trachea

+ + + + + + + + + + 10

Inflammation, Chronic Active 1 1 1 1 1 1 1 1 1 1 1.0

Metaplasia, Squamous 1 1 1 1 1 1 1 1 1 1 1.0

Regeneration 2 2 2 2 2 2 2 2 2 2 2.0

SPECIAL SENSES SYSTEM

Eye + + + + + + + + + + 10

Cornea, Inflammation, Suppurative 1 1 1 1 1 1 1 1 1 1 1.0

URINARY SYSTEM

Kidney + + + + + + + + + + 9

Nephropathy 2 1 1 1 1 1 1 1 1 1 1.3

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 20727 - 01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 02/10/2012

Test Type: 90-DAY

ortho-Phthalaldehyde

Time Report Requested: 11:42:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 643-79-8

First Dose M/F: 01/19/09 / 01/20/09

Species/Strain: RATS/HSD

Lab: BNW

DAY ON TEST

HARLAN SPRAGUE DAWLEY RATS
FEMALE
1.75 ppm

ANIMAL ID

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 0 |

*** TOTALS****ALIMENTARY SYSTEM**

Stomach, Glandular

+ + + + + + + + + +

10**CARDIOVASCULAR SYSTEM**

NONE

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

Uterus

+

1

Decidual Reaction

4

1 4.0**HEMATOPOIETIC SYSTEM**

Spleen

+ + + + + + + + + +

10

Atrophy, Lymphoid

1

1 1.0

Thymus

+ + + + + + + + + +

10**INTEGUMENTARY SYSTEM**

Skin

+ + + + + + + + + +

10

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

M .. Missing tissue

1-4 .. Lesion qualified as:

+ .. Tissue examined microscopically

1) Minimal 3) Moderate

X .. Lesion present

2) Mild 4) Marked

I .. Insufficient tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

Experiment Number: 20727 - 01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 02/10/2012

Test Type: 90-DAY

ortho-Phthalaldehyde

Time Report Requested: 11:42:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 643-79-8

First Dose M/F: 01/19/09 / 01/20/09

Species/Strain: RATS/HSD

Lab: BNW

DAY ON TEST
HARLAN SPRAGUE DAWLEY RATS
FEMALE
1.75 ppm

ANIMAL ID

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |

* TOTALS

Epithelium, Hair Follicle, Parakeratosis

1

1

1

3 1.0

MUSCULOSKELETAL SYSTEM

NONE

NERVOUS SYSTEM

NONE

RESPIRATORY SYSTEM

| | | |
|---|---------------------|--------|
| Larynx | + + + + + + + + + + | 10 |
| Inflammation, Chronic Active | 2 1 1 1 1 2 2 2 2 1 | 9 1.4 |
| Metaplasia, Squamous | 2 2 2 1 2 2 2 2 2 2 | 10 1.9 |
| Necrosis | | 1 2.0 |
| Regeneration | 2 | 3 2.0 |
| Ulcer | 1 | 1 1.0 |
| Lung | + + + + + + + + + + | 10 |
| Alveolus, Infiltration Cellular, Histiocyte | 1 1 2 | 3 1.3 |
| Bronchus, Fibrosis | 1 | 1 1.0 |
| Bronchus, Hyperplasia | 2 | 1 2.0 |
| Bronchus, Inflammation, Chronic Active | 1 2 | 2 1.5 |
| Bronchus, Metaplasia, Squamous | 1 1 | 2 1.0 |
| Perivascular, Inflammation, Chronic Active | 2 | 1 2.0 |
| Nose | + + + + + + + + + + | 10 |
| Inflammation, Suppurative | 3 2 2 2 2 3 3 2 2 3 | 10 2.4 |
| Synechia | 1 | 1 1.0 |
| Glands, Olfactory Epithelium, Hyperplasia | 1 1 | 2 1.0 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

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I .. Insufficient tissue

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1-4 .. Lesion qualified as:

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- 2) Mild 4) Marked

Experiment Number: 20727 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

ortho-Phthalaldehyde

CAS Number: 643-79-8

Date Report Requested: 02/10/2012

Time Report Requested: 11:42:10

First Dose M/F: 01/19/09 / 01/20/09

Lab: BNW

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
1.75 ppm | DAY ON TEST

ANIMAL ID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
|--|------------------------------|---|---|---|---|---|---|---|---|---|---|--------|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | |
| | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| * TOTALS | | | | | | | | | | | | |
| Goblet Cell, Respiratory Epithelium,
Hyperplasia | | | | | | 1 | | | | | | 1 1.0 |
| Olfactory Epithelium, Accumulation, Hyaline
Droplet | | | | | 1 | 1 | 2 | | 2 | | | 4 1.5 |
| Olfactory Epithelium, Atrophy | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | 10 2.0 |
| Olfactory Epithelium, Metaplasia, Respiratory | 1 | 1 | | | 2 | | 1 | | 1 | | | 5 1.2 |
| Olfactory Epithelium, Metaplasia, Squamous | | | | | 1 | | | | | | | 1 1.0 |
| Respiratory Epithelium, Hyperplasia | 1 | | | | | 1 | 2 | | 1 | | | 4 1.3 |
| Respiratory Epithelium, Metaplasia, Squamous | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | | 10 1.9 |
| Respiratory Epithelium, Necrosis | 1 | 1 | | 1 | 1 | 2 | 1 | 1 | 1 | 1 | | 9 1.1 |
| Respiratory Epithelium, Ulcer | 1 | | | | | | | | | | | 1 1.0 |
| Turbinate, Atrophy | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | 10 1.0 |
| Trachea | + | + | + | + | + | + | + | + | + | + | | 10 |
| Fibrosis | | | | | | 1 | 1 | | | | | 2 1.0 |
| Inflammation, Chronic Active | 1 | 1 | | | 1 | 1 | 2 | | | | | 5 1.2 |
| Metaplasia, Squamous | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | 10 1.0 |
| Necrosis | | | | | | 1 | 1 | 1 | | | | 3 1.0 |
| Regeneration | 3 | 2 | | | 2 | 3 | 3 | 2 | | 3 | | 7 2.6 |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | |
| Eye | + | + | + | + | + | + | + | + | + | + | | 10 |
| URINARY SYSTEM | | | | | | | | | | | | |
| Kidney | + | + | + | + | + | + | + | + | + | + | | 10 |
| Nephropathy | 1 | 1 | | | 1 | | | 1 | 1 | | | 5 1.0 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 20727 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

ortho-Phthalaldehyde

CAS Number: 643-79-8

Date Report Requested: 02/10/2012

Time Report Requested: 11:42:10

First Dose M/F: 01/19/09 / 01/20/09

Lab: BNW

| | | | |
|--|--------------------|---------------------|--|
| HARLAN SPRAGUE DAWLEY RATS
FEMALE
3.5 ppm | DAY ON TEST | 0 0 0 0 0 0 0 0 0 0 | |
| | | 0 0 0 0 0 0 0 0 0 0 | |
| | | 4 9 1 9 9 9 9 9 9 9 | |
| | | 6 3 6 3 3 3 3 3 3 3 | |
| | ANIMAL ID | 0 0 0 0 0 0 0 0 0 0 | |
| | | 0 0 0 0 0 0 0 0 0 0 | |
| | | 9 9 9 9 9 9 9 9 9 9 | |
| | | 0 0 0 0 0 0 0 0 0 1 | |
| | | 1 2 3 4 5 6 7 8 9 0 | |
| | | * TOTALS | |

ALIMENTARY SYSTEM

| | | | | | | | | | | | | |
|---------------------------|---|---|---|---|---|---|---|---|---|---|---|----|
| Esophagus | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Large, Cecum | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Large, Colon | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Large, Rectum | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Small, Ileum | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Small, Jejunum | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Liver | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Pancreas | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Stomach, Glandular | + | + | + | + | + | + | + | + | + | + | + | 10 |

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|---|----|
| Blood Vessel | + | + | + | + | + | + | + | + | + | + | + | 10 |
|--------------|---|---|---|---|---|---|---|---|---|---|---|----|

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

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Experiment Number: 20727 - 01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 02/10/2012

Test Type: 90-DAY

ortho-Phthalaldehyde

Time Report Requested: 11:42:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 643-79-8

First Dose M/F: 01/19/09 / 01/20/09

Species/Strain: RATS/HSD

Lab: BNW

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
3.5 ppm | DAY ON TEST
ANIMAL ID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
|---|--------------------------|----------|---|---|---|---|---|---|---|---|---|----|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 4 | 9 | 1 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | |
| | | 6 | 3 | 6 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |
| | | * TOTALS | | | | | | | | | | |
| Heart | | + | + | + | + | + | + | + | + | + | + | 10 |
| ENDOCRINE SYSTEM | | | | | | | | | | | | |
| Adrenal Cortex | | + | + | + | + | + | + | + | + | + | + | 10 |
| Adrenal Medulla | | + | + | + | + | + | + | + | + | + | + | 10 |
| Islets, Pancreatic | | + | + | + | + | + | + | + | + | + | + | 10 |
| Parathyroid Gland | | + | + | + | M | + | + | + | + | + | + | 9 |
| Pituitary Gland | | + | + | + | + | + | + | + | + | + | + | 10 |
| Thyroid Gland | | + | + | + | + | + | + | + | + | + | + | 10 |
| GENERAL BODY SYSTEM | | | | | | | | | | | | |
| NONE | | | | | | | | | | | | |
| GENITAL SYSTEM | | | | | | | | | | | | |
| Clitoral Gland | | + | + | + | + | + | + | + | + | + | + | 10 |
| Ovary | | + | + | + | + | + | + | + | + | + | + | 10 |
| Uterus | | + | + | + | + | + | + | + | + | + | + | 10 |
| HEMATOPOIETIC SYSTEM | | | | | | | | | | | | |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

A .. Autolysis precludes evaluation

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BLANK .. Not examined microscopically

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2) Mild 4) Marked

Experiment Number: 20727 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

ortho-Phthalaldehyde

CAS Number: 643-79-8

Date Report Requested: 02/10/2012

Time Report Requested: 11:42:10

First Dose M/F: 01/19/09 / 01/20/09

Lab: BNW

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
3.5 ppm | DAY ON TEST | | | | | | | | | | |
|---|----------------------------|----------------------------|----------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| | | 0
0
4
6 | 0
0
9
3 | 0
0
1
6 | 0
0
9
3 |
| ANIMAL ID | | | | | | | | | | | * TOTALS |
| | 0
0
9
0
1
2 | 0
0
9
9
9
3 | 0
0
9
9
9
4 | 0
0
0
5 | 0
0
0
6 | 0
0
0
7 | 0
0
0
8 | 0
0
0
9 | 0
0
0
0 | 0
0
0
0 | |
| Bone Marrow | + | + | + | + | + | + | + | + | + | + | 10 |
| Lymph Node, Bronchial | + | + | + | M | + | M | + | M | + | + | 7 |
| Lymph Node, Mandibular | + | + | + | + | + | + | + | + | + | + | 10 |
| Lymph Node, Mediastinal | + | + | + | + | M | M | + | M | + | M | 6 |
| Lymph Node, Mesenteric | + | + | + | + | + | + | + | + | + | + | 10 |
| Spleen | + | + | + | + | + | + | + | + | + | + | 10 |
| Atrophy, Lymphoid | 1 | 1 | 2 | 1 | | | | | | | 4 1.3 |
| Thymus | + | + | M | + | + | + | + | + | + | + | 9 |
| Atrophy, Lymphoid | 1 | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | 6 1.0 |
| INTEGUMENTARY SYSTEM | | | | | | | | | | | |
| Mammary Gland | + | + | + | + | + | + | + | + | + | + | 10 |
| Skin | + | + | + | + | + | + | + | + | + | + | 10 |
| Adnexa, Degeneration | | | | | 1 | | | | | | 1 1.0 |
| Epithelium, Hair Follicle, Parakeratosis | | | | | 1 | | 1 | | | | 3 1.0 |
| Hair Follicle, Atrophy | | | | | | 1 | | | | | 1 1.0 |
| MUSCULOSKELETAL SYSTEM | | | | | | | | | | | |
| Bone | + | + | + | + | + | + | + | + | + | + | 10 |
| NERVOUS SYSTEM | | | | | | | | | | | |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 20727 - 01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 02/10/2012

Test Type: 90-DAY

ortho-Phthalaldehyde

Time Report Requested: 11:42:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 643-79-8

First Dose M/F: 01/19/09 / 01/20/09

Species/Strain: RATS/HSD

Lab: BNW

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
3.5 ppm | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
|--|---------------------|---|---|---|---|---|---|---|---|---|---|--------|
| | ANIMAL ID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Brain | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| RESPIRATORY SYSTEM | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Larynx | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | | |
| | | | | | | | | | | | | |
| Larynx | + + + + + + + + + + | | | | | | | | | | | |
| Inflammation, Chronic Active | 2 2 2 1 1 2 2 2 2 2 | | | | | | | | | | | 10 1.8 |
| Metaplasia, Squamous | 3 3 3 3 3 3 3 3 3 3 | | | | | | | | | | | 10 3.0 |
| Necrosis | 3 1 1 1 1 1 1 1 1 1 | | | | | | | | | | | 7 1.3 |
| Regeneration | 2 | | | | | | | | | | | 1 2.0 |
| Lung | + + + + + + + + + + | | | | | | | | | | | |
| Alveolus, Infiltration Cellular, Histiocyte | 2 2 2 2 2 2 2 2 2 2 | | | | | | | | | | | 9 2.0 |
| Alveolus, Inflammation, Suppurative | 2 1 | | | | | | | | | | | 2 1.5 |
| Bronchus, Fibrosis | 1 | | | | | | | | | | | 1 1.0 |
| Bronchus, Hyperplasia | 2 2 2 2 2 2 2 2 2 2 | | | | | | | | | | | 6 2.0 |
| Bronchus, Inflammation, Chronic Active | 3 2 1 1 2 1 1 1 2 2 | | | | | | | | | | | 10 1.6 |
| Bronchus, Metaplasia, Squamous | 2 2 2 1 1 1 1 1 2 2 | | | | | | | | | | | 9 1.6 |
| Bronchus, Necrosis | 1 1 | | | | | | | | | | | 2 1.0 |
| Bronchus, Regeneration | 1 | | | | | | | | | | | 1 1.0 |
| Interstitial, Fibrosis | 3 | | | | | | | | | | | 2 2.0 |
| Perivascular, Inflammation, Chronic Active | 2 1 1 2 2 2 2 | | | | | | | | | | | 6 1.7 |
| Nose | + + + + + + + + + + | | | | | | | | | | | |
| Inflammation, Suppurative | 3 2 3 3 3 3 3 3 3 3 | | | | | | | | | | | 10 2.9 |
| Glands, Olfactory Epithelium, Hyperplasia | 1 1 | | | | | | | | | | | 2 1.0 |
| Olfactory Epithelium, Atrophy | 2 2 2 2 2 1 2 2 2 2 | | | | | | | | | | | 10 1.9 |
| Olfactory Epithelium, Metaplasia, Respiratory | 2 1 1 1 1 1 2 2 2 | | | | | | | | | | | 7 1.4 |
| Olfactory Epithelium, Necrosis | 1 | | | | | | | | | | | 1 1.0 |
| Olfactory Epithelium, Regeneration | 1 | | | | | | | | | | | 1 1.0 |
| Olfactory Epithelium, Hyperplasia | 1 1 1 | | | | | | | | | | | 3 1.0 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

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- 1) Minimal
- 3) Moderate
- 2) Mild
- 4) Marked

Experiment Number: 20727 - 01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 02/10/2012

Test Type: 90-DAY

ortho-Phthalaldehyde

Time Report Requested: 11:42:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 643-79-8

First Dose M/F: 01/19/09 / 01/20/09

Species/Strain: RATS/HSD

Lab: BNW

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
3.5 ppm | DAY ON TEST
ANIMAL ID | | | | | | | | | | | | | * TOTALS |
|---|--------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------|
| | | 0
0
4
6 | 0
0
9
3 | 0
0
1
6 | 0
0
9
3 | |
| Respiratory Epithelium, Metaplasia, Squamous | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 2 | | | | 10 2.1 |
| Respiratory Epithelium, Necrosis | 3 | 1 | 3 | 2 | 2 | 1 | 2 | 2 | 1 | 1 | | | | 10 1.8 |
| Respiratory Epithelium, Regeneration | 2 | | | | | | | | | | | | | 1 2.0 |
| Turbinate, Atrophy | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | | 10 1.0 |
| Trachea | | + | + | + | + | + | + | + | + | + | | | | 10 |
| Fibrosis | | 1 | 1 | | | 1 | | | 1 | 2 | 1 | | | 6 1.2 |
| Inflammation, Chronic Active | | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 | | | 10 1.8 |
| Metaplasia, Squamous | | 1 | 2 | | | 2 | 2 | 2 | 1 | | | | | 7 1.7 |
| Necrosis | | | | | 1 | 1 | | | | 1 | | | | 3 1.0 |
| Regeneration | | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | | 10 2.9 |
| Ulcer | | | | | 2 | | | | | | | | | 1 2.0 |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | |
| Eye | | + | + | + | + | + | + | + | + | + | | | | 10 |
| Anterior Chamber, Inflammation, Suppurative | | | | | | | | | | 1 | | | | 1 1.0 |
| Cornea, Inflammation, Suppurative | | | | | | | | | | 1 | | | | 1 1.0 |
| Harderian Gland | | + | + | + | + | + | + | + | + | + | | | | 10 |
| URINARY SYSTEM | | | | | | | | | | | | | | |
| Kidney | | + | + | + | + | + | + | + | + | + | | | | 10 |
| Nephropathy | | | 1 | | | | | | | | | | | 1 1.0 |
| Urinary Bladder | | + | + | + | + | + | + | + | + | + | | | | 10 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

A .. Autolysis precludes evaluation

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BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 20727 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

ortho-Phthalaldehyde

CAS Number: 643-79-8

Date Report Requested: 02/10/2012

Time Report Requested: 11:42:10

First Dose M/F: 01/19/09 / 01/20/09

Lab: BNW

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
7.0 ppm | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|---|-------------|---|---|---|---|---|---|---|---|---|---|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ANIMAL ID | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 4 | 4 | 9 | 6 | 9 | 4 | 5 | 5 | 5 | 6 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

* TOTALS

ALIMENTARY SYSTEM

| | | | | | | | | | | | | |
|---------------------------|---|---|---|---|---|---|---|---|---|---|---|-----|
| Esophagus | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Large, Cecum | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Large, Colon | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Large, Rectum | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Small, Ileum | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Small, Jejunum | + | A | + | + | + | + | A | + | A | M | | 6 |
| Liver | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Pancreas | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Stomach, Glandular Ulcer | + | + | + | + | + | + | + | + | + | + | + | 10 |
| | | | | 2 | | | | 2 | | | 2 | 2.0 |

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | | | |
|----------------|---|---|---|---|---|---|---|---|---|---|---|----|-----|
| Heart | + | + | + | + | + | + | + | + | + | + | + | 10 | |
| Cardiomyopathy | 2 | 1 | | | | | | | | | | 2 | 1.5 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

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BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

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Experiment Number: 20727 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

ortho-Phthalaldehyde

CAS Number: 643-79-8

Date Report Requested: 02/10/2012

Time Report Requested: 11:42:10

First Dose M/F: 01/19/09 / 01/20/09

Lab: BNW

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
7.0 ppm | ANIMAL ID | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|--|------------------|-------------|---|---|---|---|---|---|---|---|---|---|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 4 | 4 | 9 | 6 | 9 | 4 | 5 | 5 | 5 | 6 | |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |

*** TOTALS**

| | | | |
|------------|---|--|-------|
| Congestion | 1 | | 1 1.0 |
|------------|---|--|-------|

ENDOCRINE SYSTEM

| | | | | | | | | | | | | |
|--------------------|---|---|---|---|---|---|---|---|---|---|---|----|
| Adrenal Cortex | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Adrenal Medulla | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Islets, Pancreatic | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Parathyroid Gland | + | + | M | + | + | + | + | + | + | + | + | 9 |
| Pituitary Gland | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Thyroid Gland | + | + | + | + | + | + | + | + | + | + | + | 10 |

GENERAL BODY SYSTEM

| | | | | | | | | | | | |
|------|--|--|--|--|--|--|--|--|--|--|--|
| NONE | | | | | | | | | | | |
|------|--|--|--|--|--|--|--|--|--|--|--|

GENITAL SYSTEM

| | | | | | | | | | | | | |
|----------------|---|---|---|---|---|---|---|---|---|---|---|----|
| Clitoral Gland | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Ovary | + | + | + | + | + | + | + | + | + | + | + | 10 |
| Uterus | + | + | + | + | + | + | + | + | + | + | + | 10 |

HEMATOPOIETIC SYSTEM

| | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|----|
| Bone Marrow | + | + | + | + | + | + | + | + | + | + | + | 10 |
|-------------|---|---|---|---|---|---|---|---|---|---|---|----|

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

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X .. Lesion present

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Experiment Number: 20727 - 01

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

ortho-Phthalaldehyde

CAS Number: 643-79-8

Date Report Requested: 02/10/2012

Time Report Requested: 11:42:10

First Dose M/F: 01/19/09 / 01/20/09

Lab: BNW

| | DAY ON TEST | | | | | | | | | | | | |
|---|-------------|---|---|---|---|---|---|---|---|---|---|---|----------|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| HARLAN SPRAGUE DAWLEY RATS
FEMALE
7.0 ppm | ANIMAL ID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 4 | 9 | 6 | 9 | 4 | 5 | 5 | 5 | 6 | | | |
| | | | | | | | | | | | | | * TOTALS |
| Lymph Node, Bronchial | | + | + | M | M | M | + | + | + | M | M | | 5 |
| Lymph Node, Mandibular | | + | + | + | + | + | + | + | + | + | + | | 10 |
| Lymph Node, Mediastinal | | + | + | + | + | + | + | + | + | + | + | | 10 |
| Lymph Node, Mesenteric | | M | + | + | + | + | + | + | + | + | + | | 9 |
| Spleen | | + | + | + | + | + | + | + | + | + | + | | 10 |
| Atrophy, Lymphoid | | 4 | 4 | 2 | 4 | 3 | 3 | 3 | 4 | 4 | 4 | | 10 3.5 |
| Thymus | | + | + | + | + | + | + | + | + | + | + | | 10 |
| Atrophy, Lymphoid | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 10 3.0 |
| INTEGUMENTARY SYSTEM | | | | | | | | | | | | | |
| Mammary Gland | | + | + | + | + | + | + | + | + | + | + | | 10 |
| Skin | | + | + | + | + | + | + | + | + | + | + | | 10 |
| Hyperplasia, Squamous | | | | | | | 1 | | | | | | 1 1.0 |
| Adnexa, Degeneration | | 1 | 2 | 2 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | | 10 1.7 |
| Epithelium, Hair Follicle, Parakeratosis | | | | | | 1 | 2 | 2 | 1 | 2 | 1 | | 6 1.5 |
| MUSCULOSKELETAL SYSTEM | | | | | | | | | | | | | |
| Bone | | + | + | + | + | + | + | + | + | + | + | | 10 |
| NERVOUS SYSTEM | | | | | | | | | | | | | |
| Brain | | + | + | + | + | + | + | + | + | + | + | | 10 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

M .. Missing tissue

X .. Lesion present

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Experiment Number: 20727 - 01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 02/10/2012

Test Type: 90-DAY

ortho-Phthalaldehyde

Time Report Requested: 11:42:10

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 643-79-8

First Dose M/F: 01/19/09 / 01/20/09

Species/Strain: RATS/HSD

Lab: BNW

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
7.0 ppm | DAY ON TEST | | | | | | | | | | | | |
|---|-------------|---|---|---|---|---|---|---|---|---|---|---|--------|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ANIMAL ID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Respiratory Epithelium, Ulcer | | | | | | | | | | | | 1 | 1.0 |
| Trachea | | + | + | + | + | + | + | + | + | + | + | | 10 |
| Inflammation, Chronic Active | | 3 | 4 | 3 | 2 | 3 | 3 | 4 | 3 | 2 | 2 | | 10 2.9 |
| Metaplasia, Squamous | | 1 | 1 | 1 | 2 | 2 | | 1 | | | 2 | | 7 1.4 |
| Necrosis | | 4 | 3 | 1 | 1 | 3 | 1 | 2 | 1 | | | | 8 2.0 |
| Regeneration | | 3 | 1 | 1 | | 1 | 1 | 3 | 1 | 3 | 2 | | 9 1.8 |
| Ulcer | | | | | | | | 2 | 2 | | | | 2 2.0 |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | |
| Eye | | + | + | + | + | + | + | + | + | + | + | | 10 |
| Anterior Chamber, Inflammation, Suppurative | | 1 | 3 | | 1 | | | 2 | | | 1 | | 5 1.6 |
| Cornea, Hyperplasia | | | | | | | | | | | 2 | | 1 2.0 |
| Cornea, Inflammation, Suppurative | | 2 | 3 | 1 | 3 | 3 | | 3 | 2 | | 3 | | 8 2.5 |
| Cornea, Necrosis | | | 2 | 1 | 3 | 3 | | 3 | 2 | | 3 | | 7 2.4 |
| Harderian Gland | | + | + | + | + | + | + | + | + | + | + | | 10 |
| URINARY SYSTEM | | | | | | | | | | | | | |
| Kidney | | + | + | + | + | + | + | + | + | + | + | | 10 |
| Nephropathy | | | | | | | | | | 1 | 1 | | 2 1.0 |
| Urinary Bladder | | + | + | + | + | + | + | + | + | + | + | | 10 |

*** END OF REPORT ***

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